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## THE PROGRESS OF SCIENCE

## LORD RAYLEIGH

THE death of John William Strutt, third Baron Rayleigh, closes a career of remarkable scientific distinction and may mark the ending of an era in science and in civilization of which he was one of the finest representatives. The loss of the environment supplying men such as Darwin and Rayleigh is part of the price that must be paid for industrial democracy, developing through the nineteenth century and now rising to sudden supremacy through the catastrophe of war.

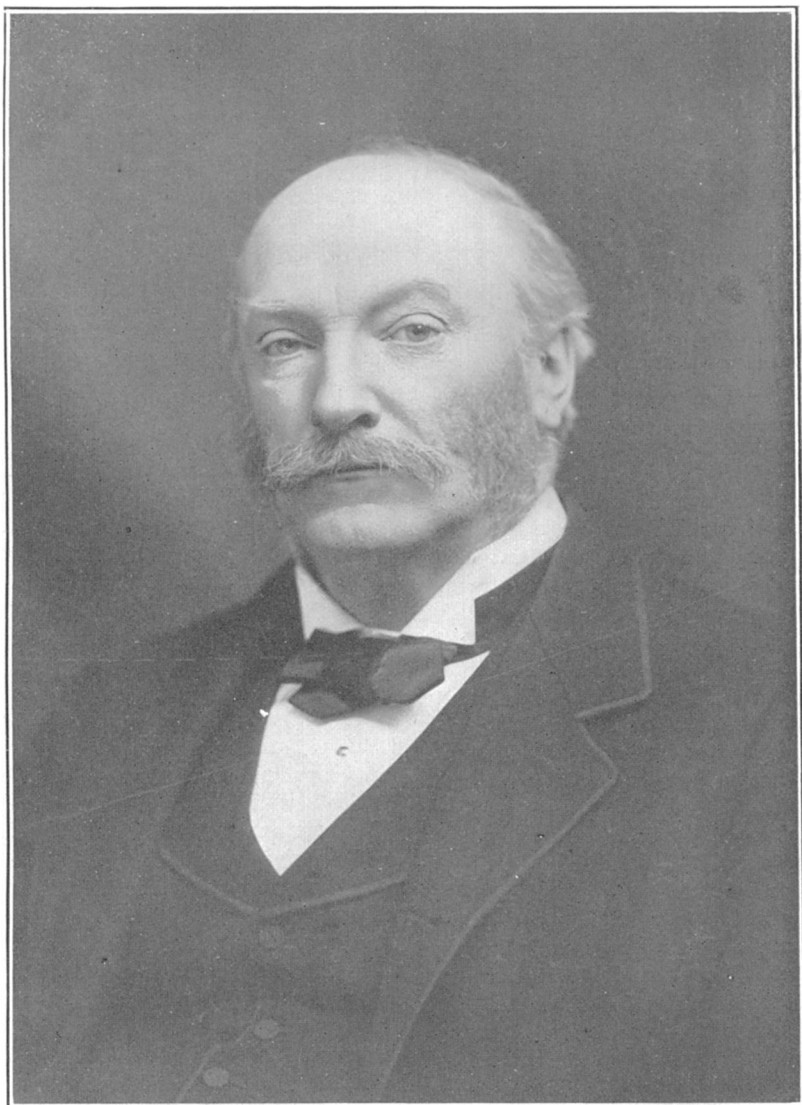
A significant part of the Victorian England was the life and work of its two great universities. Strutt entered Trinity College, Cambridge, nearly sixty years ago, and received his degree as senior wrangler in 1865, twenty years after William Thomson, later Baron Kelvin, had been second wrangler. The remarkable selective power of the Cambridge mathematical tripos examination is further shown by the fact that the senior wrangler in Thomson's year, Perkinson, was a mathematician of distinction, while the second wrangler, following Strutt, was Alfred Marshall, also later professor at Cambridge and England's most distinguished economist.

Rayleigh married Evelyn Balfour, who was a niece of the Marquis of Salisbury, author, prime minister and president of the British Association; she was a sister of Mr. Balfour, also author, prime minister and president of the British Association. The two other brothers of Lady Balfour were also distinguished, Francis Balfour, professor of animal morphology at Cambridge, being a brilliant investigator. Her sister, Mrs. Henry Sidgwick, wife

of the distinguished Cambridge professor of ethics, was an able scientific writer and investigator, becoming later principal of Newnham College. The oldest son of Lord and Lady Rayleigh, who now inherits the title, is professor of physics in the London Imperial College of Technology and the author of important contributions to the science.

Clerk Maxwell, the great mathematical physicist, was the first Cavendish professor of physics at Cambridge. On his death in 1879 he was succeeded by Rayleigh who held the chair for five years only. His student Sir J. J. Thomson, succeeded him at the age of twenty-seven. Thomson retired this year from the chair to which his student, Professor Rutherford, has now been elected. It would perhaps be impossible to name a chair in any subject or in any university held in succession by four men of such distinguished performance. The family and academic relations of Rayleigh indeed witness the efflorescence of the aristocratic tradition.

Rayleigh established his laboratory at Terling Place on his eight thousand acres of land and did his work, usually with simple apparatus. His book on the "Theory of Sound" is a classic. His "Collected Papers," published in five volumes in 1910, comprise 349 titles, and, as he continued to publish without cease, his recent papers will fill a further volume. Each of these papers is a contribution to knowledge; none of them is commonplace. To the general public Rayleigh is best known for the discovery of argon which opened a new chapter in physics. This he accomplished simply by the use of the balance, finding a new



LORD RAYLEIGH.

element truly as common as air, for it forms one two-hundredths of the atmosphere.

Rayleigh was for eighteen years professor of natural philosophy at the Royal Institution; he was for eleven years secretary and for five years president of the Royal Society; he was president of the British Association when it visited Montreal in 1884; he was chancellor of the University of Cambridge until his death; he received a Nobel Prize and all the honors that go to men of science. During the war and when over eighty he rendered great service to the progress of aviation as chairman of the National Committee on Aeronautics. With unusual truthfulness it can be said "we shall not look upon his like again," for the scientific and social conditions of his life will not recur.

#### REFORM OF THE ENGLISH UNIVERSITIES

FROM the days of Newton to Kelvin, Stokes, Maxwell, Rayleigh, Thomson, Rutherford and Larmor, the University of Cambridge has

been the home of mathematical physics. Newton entered Trinity College in 1666, and was elected a fellow in 1667. During the subsequent two hundred years until Rayleigh was elected to a fellowship in 1866, the college, which was especially frequented by the sons of the nobility and of the upper classes, produced a long line of men of distinction, including many mathematicians. Sir J. J. Thomson, second wrangler in 1880, was elected to a fellowship in that year and is now master of the college.

Oxford and Cambridge, which with about one tenth of the number of the students claimed by Columbia, have been responsible for the education of more than one half the leaders of England, and England has had more great men than any other nation. It is a noteworthy circumstance that these universities, medieval not only in religion but also in their whole outlook on life, should have this record. It seems necessary to assume that the able men of a great race were drawn to Oxford and Cambridge rather than that an



NEVILLE COURT, TRINITY COLLEGE.